

STYLE TRANSFER FOR VISUAL STORYTELLING
A CASE STUDY: THE HINDU MYTHOLOGICAL CHARACTER, YAMAH, IN
THE STYLE OF THE AMERICAN FILM DIRECTOR, TIM BURTON

A Thesis

by

RANJITH CHANDY PERUMALIL

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of
MASTER OF SCIENCE

August 2011

Major Subject: Visualization

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Approved by:

Chair of Committee,	Ergun Akleman
Committee Members,	Carol LaFayette
	Sunil Chirayath
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ABSTRACT

Style Transfer for Visual Storytelling

A Case Study: The Hindu Mythological Character, Yamah, in the Style of the
American Film Director, Tim Burton. (August 2011)

Ranjith Chandy Perumalil, B.Tech., Kerala University

Chair of Advisory Committee: Dr. Ergun Akleman

In this thesis, the concept of style transfer for visual storytelling is introduced. Style transfer for visual storytelling is the process of identifying a definitive style of a source, such as an artist or culture, and applying the features of that style to a target, such as a character which has a different style. As a proof of concept, the style of the American film director Tim Burton is transferred to a character from Hindu mythology, Yamah. The style transfer is done based on the concept of 'Pattern Language' introduced by Christopher Alexander et al., in his book, 'A Pattern Language'. A set of patterns is developed based on the source and target. The target is then designed based on the patterns. The design is then visualized in a suitable medium.

DEDICATION

To my family and friends

ACKNOWLEDGMENTS

I would like to express my most sincere thanks to my committee chair, Ergun Akleman, for his unwavering support, guidance, and enthusiasm for my work. I definitely could not have done this without his guidance. I would also like to thank my committee member, Carol LaFayette, for the feedback and encouragement she has provided. I am grateful to my committee member, Sunil Sunny Chirayath, for the patience to go through every word of my thesis and to suggest appropriate corrections. I would like to thank specially Tim McLaughlin for all the support and guidance he provided me, especially in the initial stages of my research work. It was he who helped develop my initial thesis idea into a full fledged thesis topic. I would also like to express my sincere gratitude to Jody Naderi for helping me design and develop an archetypal environment suitable for the character described in my thesis.

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CHAPTER I

INTRODUCTION

Style transfer for visual storytelling is the process of identifying a definitive style of an artist or culture and applying the features of that style to a character developed by another artist or culture which has a different style. The style of the artist or culture which is transferred to the character can be called the source style and the character or scene to which the style is transferred can be called the target. The style transfer process involves the analysis of the source and target styles to identify the characteristic features definitive to the each style. A set of patterns are developed based on the analysis. The target is designed based on the patterns developed. The last stage in the process is the visualization of the target in a suitable medium such as 3D.

To prove the concept, this research work presents a case study where the style of the American film director, Tim Burton is transferred to the Hindu mythological character, Yamah. In this case study, Yamah is the target to which the source style which is the style of Tim Burton, is transferred. A set of patterns which define the style of Tim Burton and the style of Yamah in Hindu art, are identified. Based on the patterns identified or selected, new patterns suitable for the target are developed. Yamah and it's mount, the buffalo and also the environment are designed based on the new patterns developed. The design which represent Yamah in Burton style, is then visualized in 3D (see Figure 1).

In many cases, some of the patterns of the target may not be appropriate. In such cases, these inappropriate patterns could be discarded in the final design process.

The journal model is *IEEE Transactions on Automatic Control*.



(A)

(B)

Fig. 1. *Results (A) Cropped Yamah poster, (B) Screen capture from animation short*

For example, in the case study discussed, some design patterns for Yamah such as the presence of protruding fangs or weapons such as a trident is not suitable for the final design, for artistic reasons. Such patterns are therefore discarded during the style transfer process. The final patterns for the target are developed in such a way as to achieve a result that is aesthetically pleasing. The style transfer process is based on the concept of pattern language described in the book 'A Pattern Language'(1977) by Christopher Alexander et al.

In this case study, the source and target have a common element, which is the subject of death. Many of the works by Tim Burton, deal with the subject matter of death. A good example is his stop motion movie *Corpse Bride* which provided the artistic motivation for this case study. The movie features a land of the dead, which is very colorful. The Halloween town of *The Nightmare before Christmas* has characters who are dead. This movie was produced by Burton and he was also the production designer. Burton had a significant role in the development of designs, for

the movie.

The target, Yamah from Hindu mythology is also associated with death. The Hindu mythology is rich with iconic characters, Yamah being one such character. According to the Hindu tradition, Yamah (see Figure 2) is the king of the realm of the dead and the lord of justice to whom the dead has to render an account of their deeds. Yamah was the first to die and he found the path to a settlement for all those who die. So death is a subject matter which is common to both the source, the works of Tim Burton and the target, Yamah.



Fig. 2. *A modern day illustration of Yamah [33]*

CHAPTER II

RELATED WORK

The topic of style transfer has been addressed by several research papers in the past. A recent paper along this line is "On the Transfer of Painting Style to Photographic Images through Attention to Colour Contrast" [38] by Xiaoyan Zhang, Martin Constable and Ying He. The paper proposes a way to transfer the visual style of a painting as characterised by color contrast to a photographic image by manipulating the visual attributes in terms of hue, saturation and lightness. The paper deals with the transfer of visual style of a painting, whereas this paper is presenting a way of transferring the visual style of an artist to a character from another culture which has got a style of it's own.

The paper "Style Transfer Functions for Illustrative Volume Rendering" [8] by S Bruckner and M E Groller, presents methods which allow interactive generation of high-quality volumetric illustrations using flexible data-driven illumination. Illustrative volume visualization frequently employs non-photorealistic rendering techniques to enhance important features or to suppress unwanted details. However, it is difficult to integrate multiple non-photorealistic rendering approaches into a single framework due to great differences in the individual methods and their parameters. The paper talks about the use of style transfer functions to do style transfer for illustration purposes, such as the illustrations found in medical books, whereas this paper deals with the style transfer for visual storytelling.

The paper "Color Style Transfer Techniques using Hue, Lightness and Saturation Histogram Matching" [23] presents new methods which transfer the color style of a source image into an arbitrary given target image having a different 3D color distribution. Here again the style transfer is from a source image to a target image.

"Feature Guided Texture Synthesis for Artistic Style Transfer" [37] proposes the use of Feature Guided Texture Synthesis to transfer the artistic style of an image to another image. The paper is confined to the process of style transfer from one image to another.

The M.S. thesis by Tatsuya Nakamura, "The Sopranos: Conceptual and Technical Framework for a 3D Interactive Video Game" [21] deals with the design of an interactive 3D video game. It also talks about creating a cut scene for a video game with insect characters modeled based on the human characters in an HBO drama series, "The Sopranos". The cinematic scenes and the trailer of the game are also created to present the game story. This thesis paper deals with the visual style transfer from the HBO drama series "The Sopranos" to insect characters in a 3D interactive video game.

Another M.S. thesis "Translating Indian Miniature Paintings into a Time-Based Medium" [32] by Aradhana Vaidya, creates an animation as part of the thesis work, in which the visual style of Indian mural paintings is translated to the characters of an animated short.

Julie Marie Garcia in her M.S. thesis work "Creating Effective Computer Generated Scene Lighting Using Traditional Film Lighting Techniques" [13] deals with the simulation of the traditional lighting style in a CG environment. The thesis addresses only the transfer of the lighting style from traditional to CG.

"Creating Computer Generated Scene Lighting in the Style of Edward Hopper" [18] by Hee Yoen Jo, explains the creation of a CG environment in the style of the artist Edward Hopper, giving emphasis to the lighting aspect. The current thesis addresses the transfer of the overall visual style of Burton in CG and the focus is not on the lighting aspect of it.

"Tim Burton, an Auteur?" [9] is a BA dissertation done by Alana Burgess, at

University of Portsmouth. It talks about the distinctive qualities of the works of Tim Burton, which qualifies him as an auteur. However, it does not address the various design elements used by Tim Burton which make his style unique.

CHAPTER III

METHODOLOGY

The research process involves the study and analysis of the source and the target styles to understand the elements or characteristics which make each style definitive. In this case study, the style of Tim Burton and the style of Yamah in Hindu art, are analyzed. The next step in the process is the design of the character based on the patterns developed for the character. The last step is the design of the death environment based on the patterns developed for the environment.

In short, methodology involves four distinct steps. They are the following:

1. Analysis of the source style (Tim Burton Style)
2. Analysis of the target style (Yamah in Hindu Art)
3. Design of Yamah
4. Design of an archetypal death environment

In section A, an analysis of the the source style is presented and in section B, an analysis of the target style. Both the source and target have a common element, which is the subject of death. Many of the works of Tim Burton are characterized by the subject matter of death. Yamah from Hindu Mythology is also the Lord of the dead.

A. Analysis of the Source Style (Tim Burton Style)

Tim Burton has a distinctive style, though there is a wide variety in the look of his films. He uses distinctive color schemes in his movies. For example, *Alice in Wonderland* employ white and red color schemes to indicate extremities of the character

nature (see Figure 3). Alternatively, in his moribund Gothic films, gloom and despondency are similarly reflected in the color schemes. In his films like *Batman*, *Batman Returns*, and *Sweeney Todd*, the predominant palette of the film is dark.

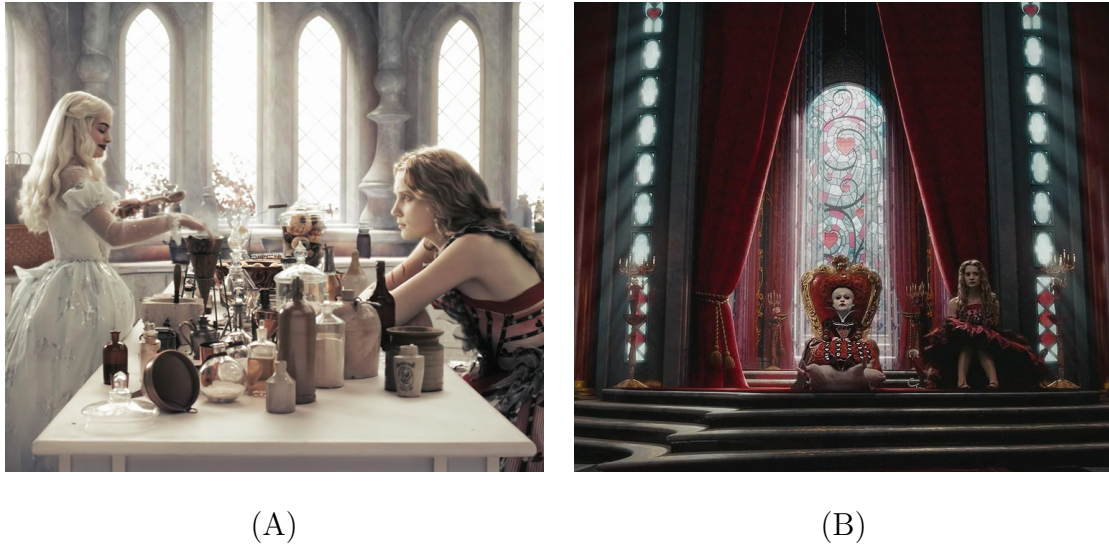


Fig. 3. Color schemes (A) White color scheme [27], (B) Red color scheme [27]

Sleepy Hollow has a tinted feel - muted autumnal colors which complement the dead forest and creepy mist. In *Ed Wood*, the black and white film stock gives a sentimental feel and provides a degree of nostalgic realism. *Big Fish* and *Corpse Bride* employ both muted and colorful schemes. The use of both color schemes in *Big Fish* helps to emphasize the fantastic nature of the stories told by Edward, the main character of the movie.

In terms of story telling, Burton's narratives are usually linear, although he does incorporate flashbacks, such as the ones seen in *Big Fish*. In many of his works such as *Pee-Wee's Big Adventure*, *Beetlejuice*, *Mars Attacks!* and *Big Fish*, events form apparently free style and merge from one to another. According to Odell and Leblanc in many tales "there's a duality between the magically wonderful and the

grotesquely grim, a world Burton adores exploring” [24]. When speaking about his love of fairy tale characters Burton says, ”There’s a foundation to them, but there’s more besides, they’re open to interpretation” [28]. This statement applies to many of the main characters in Tim Burton’s films. Often their personalities greatly differ from the way they look, which reinforces the idea that individuals should not be judged primarily on their appearances.

In the words of Odell and Le Blanc ”What makes a Burton film so magical is the influence of past absurdities and eccentricities, the never-never land of children’s books or the charnel house trappings of the existential horror writers. The links between horror, folk tale and fantasy genres have always been strong, especially in works for children” [24]. There are certain thematic elements, common to many of the works done by Tim Burton, which make them look different from that of his peers. Subverted themes, unusual lead characters, death and grotesque are examples of thematic elements characteristic to Burton style.



(A)



(B)

Fig. 4. *Subverted themes (A) Haunted ghosts [35], (B) Fearsome hero [19]*

Subverted themes are characteristic to Burton style. Tim Burton takes an established genre and by twisting it he creates a sense of awe and wonder. For example, in *Edward Scissorhands* the main romantic lead is an automaton with scissors for hands, which has more heart than any human does. The concept of the haunted house, is subverted in the film *Beetlejuice*, by telling a story of a pair of bland ghosts haunted by a horrible family. *Sleepy Hollow* has a hero who cannot stand the sight of blood (see Figure 4). Many of the Burton movies, such as *Edward Scissorhands* deal with unusual character leads that do not conform to the attitudes and mores of the day. The most sympathetically portrayed lead characters are those who are different from the norm.

Death is a subject that occurs repeatedly in many Burton films, though it is not personified as a character in any of his films. Because of the morbid themes employed in his movies, there is usually something grotesque going on in Burton movies. The resurrection of a dead dog as in *Frankenweenie*, evil clowns with nasty surgical tools as in *Pee-Wee's Big Adventure*, the headless horseman clutching a bag of heads in *Sleepy Hollow* are examples.

In addition to these thematic elements, there are certain other elements which add a definitive style to Burton's work. They are the following:

1. Design elements
2. Composition elements
3. Lighting style
4. Coloring style
5. Character elements



(A)

(B)

Fig. 5. *Stripes and swirls* (A) *Garment stripes* [27], (B) *Helmet swirls* [2]

1. Design Elements

There are certain design elements which are characteristic of Burton's works such as stripes, swirls, spirals, curves, tapered forms and skewed shapes.

a. Patterns Such as Stripes and Swirls

Stripes are a characteristic design element found in many Burton movies. The stripy sock sand worms of *Beetlejuice*, striped garments of characters in movies such as *Charlie and the Chocolate Factory* are examples. Garments with stripes can be seen in his more recent movies like *Alice in Wonderland* (see Figure 5).

Another important design element quite common in Burton movies is the swirl pattern. This pattern can be seen on different objects such as the Lollipop in *Charlie and the Chocolate Factory* or the helmets of the apes in *Planet of the Apes*. Swirls are sometimes used in shot transitions and title sequences. The title sequence and some of the shot transitions in *Charlie and the Chocolate Factory* are examples (see



(A)



(B)

Fig. 6. *Swirls (A) Lollipop [26], (B) Title sequence [26]*

Figure 6).

b. Shapes Such as Spirals and Curves

Spirals and smoothly curved shapes form one of the most important design elements of Burton's visual style. The spiral hill of *The Nightmare before Christmas* and the spirally coiled ferns of *Corpse Bride* are some examples. The smoothly curved tree trunk of *Sleepy Hollow* and the curved hair of the oompa-loompas of *Charlie and the Chocolate Factory* are some examples of the curved shapes employed by Burton in his scenes. The spiral formations can be found on many objects, including both man-made and naturally occurring objects in the scene. Spirals or smooth curves can be seen in the hair and moustache of the characters and in the props used by many of the characters in *Corpse Bride* (see Figure 7).



(A)



(B)

Fig. 7. *Spirals* (A) *The Nightmare before Christmas* [30], (B) *Corpse Bride* [34]

c. Wonky and Tapered Forms

The use of wonky or skewed shapes and forms, especially in the design of man made objects is another important feature of Burton design. This can be seen in movies like *Beetlejuice*, *The Nightmare before Christmas* and *Corpse Bride*. Tapered forms are another common Burton design element. Tapered buildings in Halloween Town and in the Land of the dead in movies like *The Nightmare before Christmas* and *Corpse Bride* respectively are examples.

2. Composition Elements

Composition elements are those which help the composition of a scene. Some of the main composition elements used by Burton in many of his works are:

1. Full moon night
2. Graveyard/tombstones



Fig. 8. Full moon (A) *Corpse Bride* [34], (B) *Sleepy Hollow* [19]

3. Snow covered lands

4. Leafless tree/twisted stump

a. Full Moon Night

The circular full moon is often, not only a light source for the scene, but also a composition element in the scene (see Figure 8). The posters of *Sleepy Hollow*, *The Nightmare before Christmas* and *Corpse Bride*, show full moon as a background element.

b. Graveyard or Tombstones

Graveyard is another common element found in Burton movies. *The Nightmare before Christmas*, *Sleepy Hollow* and *Corpse Bride* are some examples (see Figure 9).



(A)

(B)

Fig. 9. Graveyard (A) *Sleepy Hollow* [19], (B) *Corpse Bride* [34]

c. Snow Lands

Winter season and snow covered lands are seen in many of Burton's movies. Edward carves ice sculptures and the shavings result in snow fall in the movie *Edward Scissorhands*. The title sequence in *Charlie and the Chocolate Factory* starts with an exterior shot of the factory in a winter snowfall. Snow covered lands are seen in many shots of *The Nightmare before Christmas* and *Corpse Bride*.

d. Twisted Tree Stump

Twisted tree stump is seen in movies such as *Sleepy Hollow* and *Alice in Wonderland*. In these movies, the twisted tree forms a major composition element for some shots (see Figure 10).

3. Lighting Style

The lighting style of Burton is characterized by the following patterns:



(A)

(B)

Fig. 10. *Twisted tree stump (A) Sleepy Hollow [19], (B) Alice in Wonderland [27]*

1. Low-key lighting
2. Monochromatic blue lighting for exterior night scenes

a. Low-key Lighting

This type of lighting means a dark looking environment, with a high key-to-fill ratio. In many Burton scenes, the bright key light is placed behind the subject whereas the less intense fill lights are used to illuminate the front side of the subjects. This type of lighting can be found in many of the scenes in movies like *Corpse Bride*, *Batman* and *Alice in Wonderland* (see Figure 11). This lighting is ideal for creating dramatic images with a lot of visual impact. They can create a dramatic look for darker and more shadowy scenes with a lot of contrast between the bright and dark areas in the scene. Burton uses this technique to create the impression of a dark scene, while showing some well-lit detail in selected controlled areas. Thus, he creates a greater sense of darkness through contrast rather than through underexposure. Burton at



Fig. 11. *Low-key lighting* [34], [15], [27].

the same time uses low key-to-fill ratios to create the lighting for cloudy, overcast, or snowy days in the land of the living in *Corpse Bride*.

b. Monochromatic Blue Lighting

In the case of exterior night scenes, the characters are usually placed in a bluish tinted light with no contrasting warm colors. In most cases, moon is supposed to be the only light source and so the environment is lit by bluish moon-light. Again, many of the outside night scenes from *The Nightmare before Christmas* and *Corpse Bride* are good examples for this type of scenes.



(A)



(B)

Fig. 12. *Breaking monotony (A) Muted [11], (B) Colorful [11]*

4. Coloring Style

Burton has got a unique coloring style which is very evident in many of his works. The use of white and red color schemes to represent good and bad, in *Alice in Wonderland* and the use of muted and colorful scenes to represent the land of the living and the

land of the dead, respectively in 'Corpse Bride' are all examples of his coloring style. The following are the patterns for his coloring style:

1. Muted and colorful juxtaposed

2. Purple and green colors

- a. Muted and Colorful, Juxtaposed

One important technique employed by Burton while choosing the colors for the environment in his various scenes is the juxtaposition of the muted and colorful environments. This is very effective in creating a contrast between scenes and to break the monotony caused by using muted colored backgrounds continuously. The movie *Sweeney Todd: The Demon Barber of Fleet Street* is a good example (see Figure 12).

This technique is used in movies like *Corpse Bride* to convey opposite ideas about the backgrounds portrayed. The colorful scenes represent the Land of the Dead and the muted color scenes represent the Land of the Living. In some scenes from *Charlie and the Chocolate Factory*, Burton uses colorful elements along with much less saturated background, within the same scene. Again, the colorful interior of the factory makes a stark contrast with the moody snow covered exterior shots (see Figure 13). Likewise, the muted colors of the Halloween town contrasts the vivid colors of the Christmas town in *The Nightmare before Christmas*.

- b. Purple and Green

In scenes where vibrant colors are used, Tim Burton chooses colors carefully to create a contrast between the colors. Different shades of green and purple is often opted by Burton for his colorful scenes, which adds a nice color contrast. Sometimes the purple is made more blue or pink. The colors for Joker in *Batman* are predominantly green



Fig. 13. *Juxtaposed muted and colorful scenes or elements* [26]

and purple, the hair of the Joker being green and his costume being purple. Another nice example would be some of the characters and scenes from the Land of the Dead in *Corpse Bride* (see Figure 14).



Fig. 14. *Purple and green* [15], [34]

5. Character Elements

The characters of Burton's stop-motion movies have some features common to almost all the characters he has designed. Though Carlos Grangel developed the character designs for *Corpse Bride*, the main characters were initially sketched by Burton. The following are some of the characteristic features common to Burton's character designs.

1. Large eyes and small pupils
2. Dark areas under eyes
3. Thin limbs and tiny feet
4. Round or slender body

5. Long and tapered props

a. Large Eyes and Small Pupils

The animated characters of Tim Burton usually have large eyes and small pupils irrespective of the role the characters play in the movies. The characters from *Corpse Bride* are an example for this (see Figure 15).

b. Dark Areas Under Eyes

The characters of Burton especially the characters sketched by Burton, has got dark areas under their eyes. This is a way to reveal that his characters sneak around during night and the lack of sleep results in the discoloration around the eyes.

c. Thin Limbs and Tiny Feet

The lean characters have long or stretched body shape. Thin hands and legs are common to almost all characters irrespective of whether it is a tall or short character. Almost all the characters have tiny feet, which appear to be incapable of supporting their own body weight. The characters from *Corpse Bride* is again an example for this.

d. Slender or Round Body

The characters, specifically from *Corpse Bride*, have either a long and slender body or a round body. So the characters are either tall with long and slender torso or they are short and stout (see Figure 16).



Fig. 15. *Large eyes for characters from Corpse Bride [34]*



(A)

(B)

Fig. 16. *Corpse Bride* characters (A) *Slender body* [34], (B) *Round body* [34]

e. Long and Tapered Props

The props used by the various characters in Burton's animation movies are usually long and tapered. The hats worn by characters, the walking stick and other such props are usually quite long and tapered towards one end and sometimes even wonky. For example, the mayor of the Halloween Town in *The Nightmare before Christmas* has a long and tapered hat.

B. Analysis of the Target Style (Yamah in Hindu Art)

The target, Yamah, has a particular style in Hindu art. Most of the representations of Yamah is in the form of statues or sculptures inside many temples in India. There are a few modern day representations of Yamah in the form of paintings and illustrations. Yamah is considered as one of the eight guardians of the quarters. He is the regent of the Southern quarter of the compass and so he is depicted usually on the southern side walls and ceilings of the Indian Temples.



(A)

(B)

Fig. 17. *Discarded patterns (A) Yamah with his consort [33], (B) Yamah with fangs [33]*

In many representations Yamah is shown seated on the buffalo along with his wife. An example is the fragment of a temple ceiling originating from Hemavathi, South India kept in the Government Museum, of Chennai, India (see Figure 17). In some sculptures such as the bronze statue originating from Bhuvaneswara, kept in the State Museum of Orissa, he has fangs protruding out of his mouth (see Figure 17). In some representations such as the Trichonopoly painting, he is shown with four hands. In this case study, certain patterns for the target such as the representation of the wife of Yamah along with him and the presence of fangs or more than two hands, is discarded. This is done for artistic and aesthetic reasons. Similar to the classification of elements of the source style, the elements which add a definitive style to the representation of Yamah in Hindu art can also be classified as:

1. Design elements
2. Composition elements

3. Lighting style
4. Coloring style
5. Character elements

1. Design Elements

There are certain design elements common to the representations of Yamah in Hindu art, such as:

1. Smooth and round forms
2. Pointed or conical forms

a. Smooth and Round Forms

In many representations of Yamah, the body parts are smooth and round. A fine example is found on the southern wall of the Mandapa of the Brahmeswara Temple at Bhuvaneswara in Orissa, India that was built in the eleventh century A.D. In this representation of Yamah, the face, belly and limbs appear to be smooth and round. The seventh century A. D. stone sculpture of Yamah from Parasurameswara temple, Bhuvaneswara, Orissa, India is another example (see Figure 18).

b. Pointed or Conical Forms

The crown of Yamah is usually pointed or conical in form. An example of this is the depiction of Yamah found on the stone slab from Halebid, which is preserved in the National Museum of New Delhi. This fragment, which dates from the thirteenth century, shows Yamah along with his wife, seated on a buffalo adorned with small bells. Yamah wears a dhoti, a sacred cord, and a single pointed crown. The depiction



(A)

(B)

Fig. 18. *Yamah in Hindu art (A) Stone sculpture, Brahmeswara temple, Orissa [33]
(B) Bronze statue, State Museum, Orissa [33]*

of Yamah on the southern wall of the Mandapa of the Brahmeswara Temple at Bhuvaneswara in Orissa, India is another example. Here also, he is wearing a necklace, earrings and a single pointed crown. The ninth century AD bronze statue of Yamah, from Bhuvaneswara, currently found in the State Museum of Orissa, Bhuvaneswara is another example. In this representation, he has on his head, the traditional 'Karan-damakuta', a more or less conical basket crown.

2. Composition Elements

The composition elements common to many of the Yamah representations are:

1. Seated posture
2. Riding a buffalo

a. Seated Posture

Yamah is depicted in a seated position in many representations, especially in the modern day printed illustrations. A fine example of a representation of Yamah along with his wife Dhumorna, is found in the Government Museum of Chennai, India. In this representation, which dates back to the ninth century, Yamah is seated with his wife on a virile buffalo, which is adorned with a garland of small bells.



(A)



(B)

Fig. 19. *Yamah in Hindu art (A) Stone sculpture, Kandariya Mahadeva temple [33]
(B) Stone sculpture, Rajarani temple [33]*

b. Riding a Buffalo

Yamah as already mentioned is often depicted on a buffalo. As per the iconography of Yamah, mentioned in the ancient Hindu texts such as the Puranas, Yamah should be seated on a buffalo. So most representations of Yamah depict him seated on a buffalo. There are a few exceptions to this, such as the eleventh century A. D. stone sculpture of Yamah from the Kandariya Mahadeva temple, Khajuraho, Madhya Pradesh, India.

Here, Yamah is in a standing pose. Another example for stance is the eleventh century A.D. stone sculpture from the Rajarani temple in Orissa (see Figure 19).

3. Lighting Style

Since most representations of Yamah are in the form of statues or sculptures, there is no specific lighting setup. In most pictures or paintings of Yamah, he appears to be in a uniform lighting setup. Many of the modern day illustrations and paintings of Yamah show this.

4. Coloring Style

In the famous story of Savithri from Mahabharata, the loyal and faithful wife who follows her husband, Satyavan wherever he goes, we find a description of Yamah. Savithri follows her husband to the realm of the dead and she begs to Yamah for the life of her husband. By her treasure of virtues, she succeeds in getting back the life of her husband. Yamah is described here as a handsome black man clothed in a yellow garment with a turban on his head and noose in his hand. According to Van Den Bosch, the following explanation may be given for the various colors. The yellow color of Yamah's garment refer to the fact that he is considered to be the son of Vivaswat, the bright shining sun, which is usually described as yellow. The black color shows his connection with the earth and the realm of the world of the dead [33].

In the Sanskrit tradition of India, several texts deal with the iconographical prescriptions that are especially recorded for the artists who ornament the temples. In one of these texts, Matsya Purana it is stated that the color of the clothes worn by Yamah should be red. In one of the Puranas, Vishnudharmottara, there is a chapter, which deals with the iconography of Yamah, where it is mentioned that Yamah should have the complexion of a dark rain cloud. However, when he assumes the tamasa form,

the form for the destruction of the world, he should have the complexion of the petals of the dark blue lotus.

As per the descriptions in these Hindu texts, many modern day artists depict Yamah with red and yellow colored clothing. The skin complexion is usually blue and the buffalo is also depicted in dark color.

5. Character Elements

The theologians of the iconographical treatises frequently identify Yamah with one of the great all-encompassing gods. Mostly he is considered to be one of the destructive aspects of the Hindu gods like Shiva and Vishnu. This is revealed in the Trichonopoly painting of 1820, preserved in the Victoria and Albert Museum in London (see Figure 20). Yamah is represented in this painting with four hands and riding his mount, the buffalo. In his upper right hand, he holds the mace and in his upper left hand, he has the noose. He holds a trident which is a characteristic of the Hindu god, Shiva in his lower right hand. Moreover, he has a saivaitic mark on his forehead, the tripundratilaka, three horizontal white lines with a red dot.

Some of the main character elements of Yamah, common to most representations are Indian style clothing such as the scarf and the dhoti, the moustache and the presence of mace and the noose. In most representations he has a kingly attire and a crown.

C. Design of Yamah

The elements which is definitive to the source and target are already identified. The next step in the process is developing a set of patterns suitable for the final design of the target, based on the patterns identified. Once the patterns suitable for the target



(A)



(B)

Fig. 20. *Yamah in Hindu art (A) Modern printed illustration of Savithri meeting Yamah [33] (B) Trichonopoly painting, Victoria and Albert Museum, London [33]*

are developed, the character can be designed based on those patterns. There are 2 main aspects which needs to be considered in the design process of Yamah -

1. design has to have elements which will make the character look Burtonesque
2. the character needs to retain the Indian features, since the character represented is the Hindu God, Yamah.

1. Design Patterns for Yamah

A collection of patterns suitable for the target Yamah, are selected or developed from the character elements of the source style. Following are the design patterns developed for the design of the character and props based on the source style.

1. Large eyes
2. Small pupils

3. Dark areas under eyes
4. Short and round body
5. Curly hair
6. Spiral moustache
7. Long limbs
8. Thin limbs
9. Small feet
10. Curved props
11. Swirl pattern on props such as crown

In addition to these patterns, a few more patterns are selected for the target based on the character elements of the target style. They are:

1. Smooth and round forms
2. Seated posture
3. Riding a buffalo
4. Indian style clothing such as dhoti
5. Scarf
6. Moustache
7. Mace
8. Noose

9. Red clothing
10. Yellow belt representing Sun
11. Dark color for Yamah and buffalo
12. Blue skin complexion

2. Yamah in Burton Style

If the solution does not require a particular pattern, it is omitted from the design so as to get a better solution. The use of certain patterns such as long body, wonky props and striped garments are omitted in the character design process.

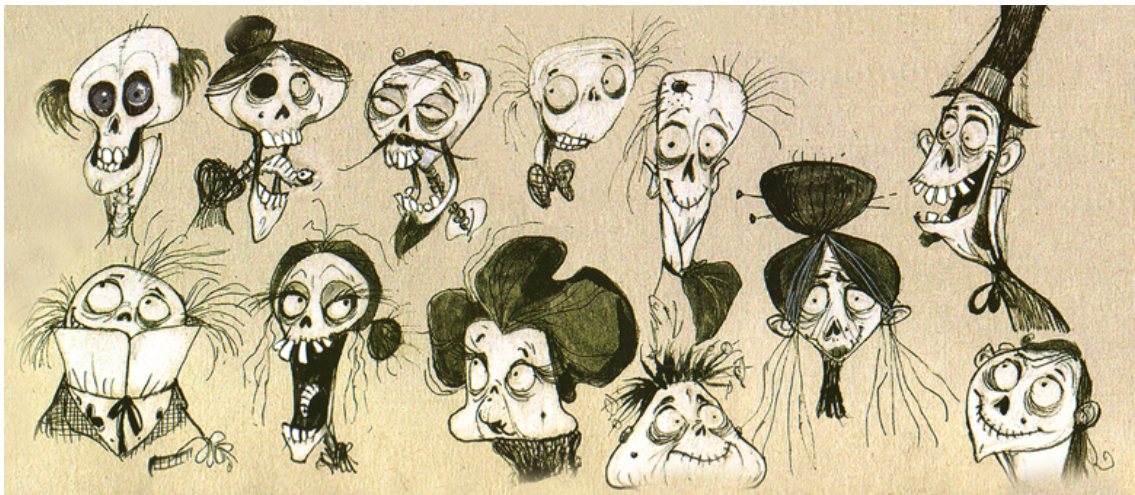


Fig. 21. *Character sketches for Corpse Bride [29]*

In addition to the above selected patterns for Yamah, a few more are added such as larger lower jaw, round facial features and inverted egg shape for the body. The inverted egg shape of the body makes him look more stronger and powerful. The character Yamah, needs to look powerful as he is the Lord of Justice. In order to achieve the powerful and strong look the face is made longer and more oval rather

than round. The lower jaw is made large enough to make the character look heroic. Large expressive eyes makes the character look more appealing and Burtonesque. The hair and moustache are either curved or form a spiral shape. The long and curved moustache hides a part of the face, which gives the character a sense of mystery. The curvature of the moustache makes the character less evil and more stylish. Long, flowing hair shows freedom and action. Based on the patterns developed for Yamah, some initial concept sketches are done.

The initial concept sketches for Yamah are similar to the various character designs for the movie *Corpse Bride* (see Figures 21 and 22).

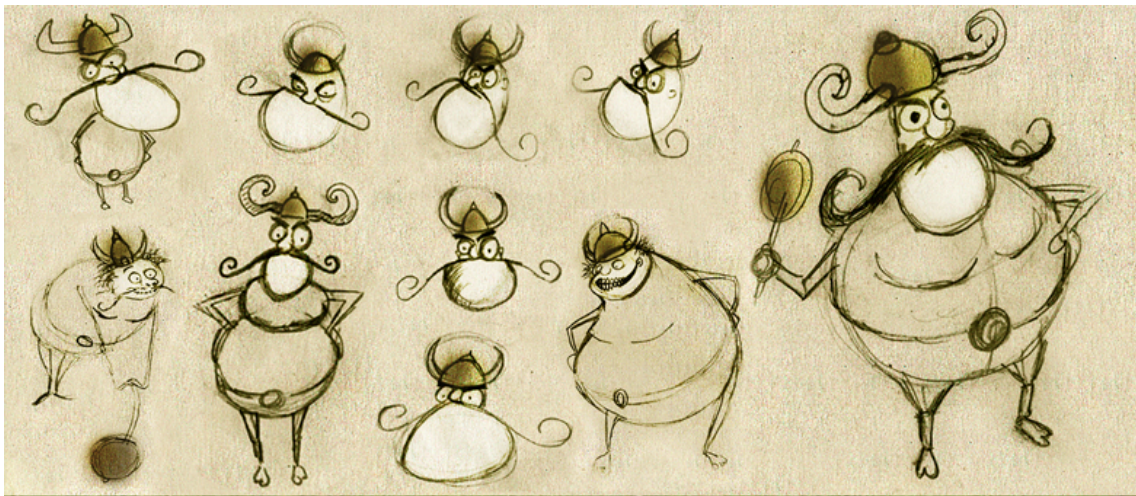


Fig. 22. *Character sketches for Yamah*

The arms and legs are made long and thin as found in Burton characters. The feet is made small to make the character look more Burtonesque. Tiny feet also helps to emphasize the mass of the torso. The shoes have a pointed and curved tip. The contrast of the sharp and straight lines of the limbs against the smooth curvature of the body helps to show that the character is fearsome but not sinister. In the initial concept sketches, the crown had two horns on each side. However, later a circular

ring replaced the horns, which is a more Indian design than the horns. In the final concept art, Yamah wears a garment, which is similar to the 'dhoti' worn in India. He has a red shawl around his neck. The shawl spreading to a wide area in the blowing wind represents the large area of influence the character has, his influence extending to all humans. The proper application of the Burton design features as well as the use of colors in a way similar to the Burton designs, is the key step involved in the character design. The figure shows the comparison between two character designs and how the application of the Burton design features such as spiral shape, swirl pattern and smooth curves has helped in making the second character design look more Burtonesque compared to the first one (see Figure 23).

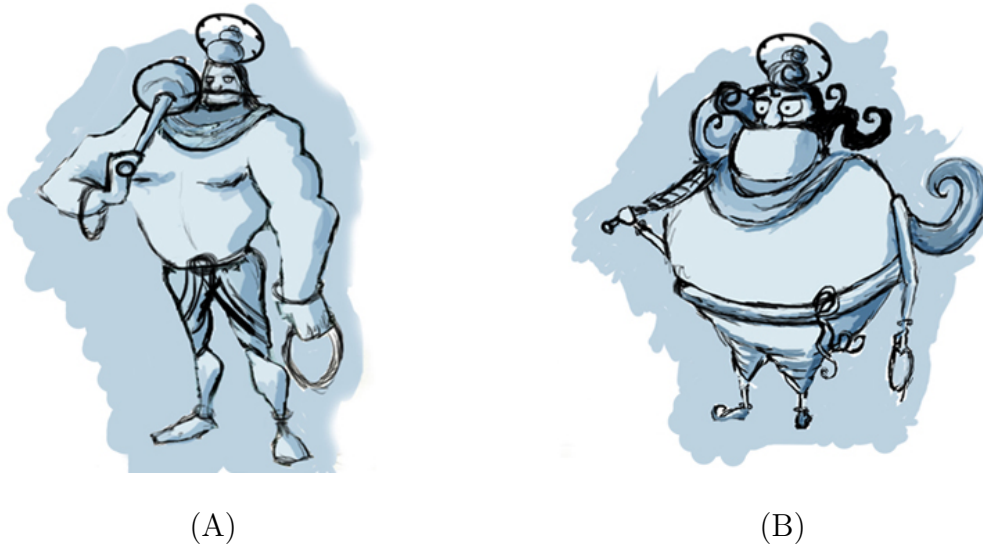


Fig. 23. *Character designs (A) Character design for Yamah (B) Burtonesque design*

The color studies of the scenes from the land of the living and the land of the dead in Corpse Bride reveal that they have a unique quality because of the colors used in it. Because of the low-key lighting condition used in many of the scenes, the colors appear less intense. In many cases, the use of tinted lighting to simulate moon light make

the objects in the scene appear bluish. The use of blue color has connotations that are significant. Blue color is a rational, conservative color that symbolizes authority, loyalty, order, peace, conformity, success, caution, and patience. So the use of blue color for the environment and also for the skin complexion of Yamah is ideal, as Yamah is 'Dharmaraja', the Lord of Justice.



(A)



(B)

Fig. 24. *Corpse Bride* (A) *Land of the Living* [34], (B) *Land of the Dead* [34]

Tim Burton has done a very careful usage of blue lighting in *Corpse Bride*. Emily, the corpse bride has a blue skin tone and this skin color matches the skin tone of Yamah found in many modern day representations. However, blue lighting can look gloomy and cold if there is no warm light to counterbalance it. In order to break the monotony caused by the monochromatic lighting setup, Burton sometimes keeps colorful objects in a muted color environment. Sometimes he juxtaposes a muted color scene with a colorful scene (see Figure 24). The clothes such as the shawl and the garment worn by Yamah are made red, whereas the cloth belt around his waist is made yellow. This juxtaposition of colors with the blue of the rest, also helps to

break the monotony. Figure 25 shows the concept art for Yamah.



Fig. 25. *Concept art (A) Yamah (B) Yamah on buffalo*

D. Design of an Archetypal Death Environment

The criteria for designing the environment for Yamah are the following:

1. Design an archetypal environment, which represented the concept of death, as Yamah is also the Lord of the Deceased.
2. The environment should be designed to make it appear Burtonesque, by carefully choosing the colors of the environment and judiciously incorporating the different design elements used by Tim Burton

1. Design Patterns for Environment

The archetypal death environment is designed based on the design patterns derived from the book 'A Pattern Language' and also the patterns from the source style. The

book 'A Pattern Language', by Christopher Alexander et al, [3] provides a substantive, illustrated discussion of a pattern language derived from traditional architecture, with 253 unitary architectural patterns. It provides a sequence of patterns from which a language can be made for a project, by choosing the patterns most useful for the project. It also provides rules and pictures, and leaves decisions to be taken for the precise environment of the project. One major feature is that the idea of a pattern language can be applied to any complex engineering task or even artistic projects. The process of deciding the visual elements of an archetypal death environment involves, identifying the patterns that could represent life, from the 253 different patterns mentioned in 'A Pattern Language' and then deriving the patterns of death from them. Most of the patterns mentioned in the book are specifically useful in the landscape architecture design process. So 10 different patterns that can be easily visualized in a 3D scene are selected from the 253 patterns mentioned in the book. Since the 10 patterns selected are those which would help to make life better, the patterns for the death environment should be derived from these. The patterns for the death environment are made by creating new patterns which are actually opposing in concept to the 10 selected patterns. The following are the patterns selected from the book:

1. Agricultural valleys
2. Promenade
3. Green streets
4. Pools and streams
5. Birthplaces
6. Sunny place

- 7. Fruit trees
- 8. Tree places
- 9. Raised Flowers
- 10. Warm colors

Based on the patterns chosen, new patterns are derived, which are opposing in concept to those chosen. A brief description of each of the 10 patterns selected from 'A Pattern Language' and of the patterns derived from them is given below:

1. Agricultural valleys: Preserve all agricultural valleys as farmland and protect this land from any development, which would destroy the unique fertility of the soil.
Destructive/Death valleys: A valley of death could be an imagery, which can be derived from the above concept.

2. Promenade: Centre of public life, where you can go to see people and to be seen.
Lost places: A place where there is no activity of life, where there is no movement, can represent something inactive or dead.

3. Green streets: A local road needs a few stones for the wheels of the cars; nothing more. Most of it can still be green.

Paved streets: Fully paved streets with no people and no nearby greenery can be symbolic of seclusion or death. Such a symbolic representation of death can be seen in the dream sequence shown in the movie *The Wild Strawberries* by Ingmar Bergman [16].

4. Pools and streams: Whenever possible, collect rainwater in open gutters and allow it to flow above ground, along pedestrian paths and in front of houses. In places without natural running water, create fountains in the streets.

Dried up water bodies: Pools, streams and water fountains can represent life, whereas densely polluted water or dried up streams can represent sickness or imminent death.

5. Birthplaces: Build local birthplaces where women go to have their children- where the entire family comes for prenatal care and education.

Graveyards: A place such as a graveyard, where people fear to go could represent the opposite of birthplaces. They could represent a place of fear, loss and pain. Graveyard can be seen in many of Tim Burton's movies including *Corpse Bride* (see Figure 26).



Fig. 26. *Concept art for the graveyard scene*

6. Sunny place: The area immediately outside the building to the south, where the sun falls must be developed and made into a place, which lets people bask in it.

Moonlight and shadows: An overcast day too cloudy with little direct sunlight or a winter night scene with moon light can be opposing in concept to a Sunny place.

7. Fruit trees: The fruit trees give the land an almost magical identity. Make a tree place under the fruit tree with a garden seat or arrange a path so the tree can provide a natural goal along the path.

Fruitless trees with withered leaves: A pattern opposing in concept can be fruitless and withered trees.

8. Tree places: Plant trees according to their nature, to form enclosures, avenues, squares, groves and single spreading trees toward the middle of open spaces. In addition, shape the nearby buildings in response to trees, so that the trees themselves, and the trees and buildings together, form places, which people can use.

Barren lands: Such lands show the absence of liveliness whereas trees bearing fruits and flowers, park benches or other things, which are related to rest and relaxation signify peace and comfort. Dry barren lands with rubbles, sharp stones and thorns can be a pattern opposing to tree places.

9. Raised flowers: Soften the edges of buildings, paths and outdoor areas with flowers. Raise the flower beds so that people can touch the flowers, bend to smell them and sit by them.

Fallen flowers: They can convey the idea of death caused by terrible hot weather or death caused by drought.

10. Warm colors: The greens and grays of hospitals and office corridors are depressing and cold. Natural wood, sunlight, bright colors are warm. Choose surface colors, which together with the color of the natural light, reflected light, and artificial lights create a warm light in the rooms.

Cool colors: A cool color such as light blue is sometimes used in a visual to create a depressing mood. A cloudy and overcast day is sometimes shown with a bluish tint.

A moon lit night scene has a bluish tinted light.

Not all of the derived patterns are used to define the death environment. From the few derived patterns, the ones, which would look Indian and would represent the style of Tim Burton are chosen, for the design of the environment. The following are the patterns selected:

1. A lost place with no green
2. No streams or pools
3. Moonlight
4. Dead or withered trees
5. Cool colors

In addition to the above selected patterns, certain patterns were selected or developed based on the design elements, composition elements and lighting style of the source style. They are the following:

1. Full moon night
2. Graveyard/tombstones
3. Snow covered lands
4. Twisted spiral tree
5. Low-key lighting
6. Blue lighting
7. Purple and green

2. Environment in Burton Style

Based on these patterns, a concept art for the environment is done. A snow covered graveyard scene in a full moon night is the basic idea behind the art. Some of the patterns such as twisted spiral tree or purple and green are not used in the concept art (see Figure 27).



Fig. 27. *Concept art for the environment - Image I*

Some of the patterns used such as 'tombstones' and 'snow' are not appropriate for the Hindu mythological character, Yamah. Snow covered lands is not quite applicable to an Indian scenario. According to the Hindu tradition, dead bodies are often cremated and not buried and so tombstones are also not appropriate for the target. So another concept art is made for the environment similar to the first one, based on the patterns developed. This time patterns such as 'purple and green' and 'withered tree' is included, but certain others such as 'tombstones', 'snow', 'full moon' and 'twisted spiral tree' is not used. The foreground hill has more bluish tint to show the effect of moon light. The sky is made dark and purple. The city in the background has dilapidated buildings and an overall purple and green tint. The overall dark setting

of the painting is helpful in depicting the place as one of mystery, danger, and death (Figure 28).



Fig. 28. *Concept art for the environment - Image II*

Since the spiral shape is a trademark of Burton design, another concept art for the environment is made incorporating the 'twisted spiral tree' pattern. In this concept art, the pattern full moon is included. This time the moon is made much bigger and made into an important composition element for the scene. The idea of a death environment is made more explicit by creating a skull image using the full moon to create the skull shape and the tree branches to form the eyes of the skull. A background wall is included in the rendering with the gate on the wall forming the lower jaw of the skull (Figure 29). The spiral tree appear like a scarf wrapping the skull.

Since the above concept art is too explicit as a death environment, it is revised to create a new one without the skull imagery. The big full moon in the background is the key light source for the environment casting an overall bluish tint to the environment. The spiral tree is retained but it's orientation is flipped. The wall in front of the

moon is avoided. The huge spirally coiled and twisted tree placed in front of the large moon, in the final environment design is inspired by the hill of *The Nightmare before Christmas* and the twisted tree of *Sleepy Hollow*. The tree also helps with the scene composition. Some of the tree branches are also coiled around like a spiral to add to the Burtonesque look of the environment (see Figure 30).



Fig. 29. *Concept art for the environment - Image III*



Fig. 30. *Final concept art for the environment*

CHAPTER IV

IMPLEMENTATION

The Implementation stage is composed of creating the characters and the environment in a visual medium based on the designs developed. The character and the various environmental elements are created using the Subdivisional and Polygonal modeling methods in Autodesk 3DS Max. The models are then textured and the main character, Yamah and its mount, the buffalo are then rigged and animated. The next step is the illumination of the scene. The night sky in the background is added as a matte painting. The staging of the scene is also given a significant consideration. The final animation is then rendered out and the postproduction works such as color correction and compositing are done using Adobe Aftereffects.

A. Modeling

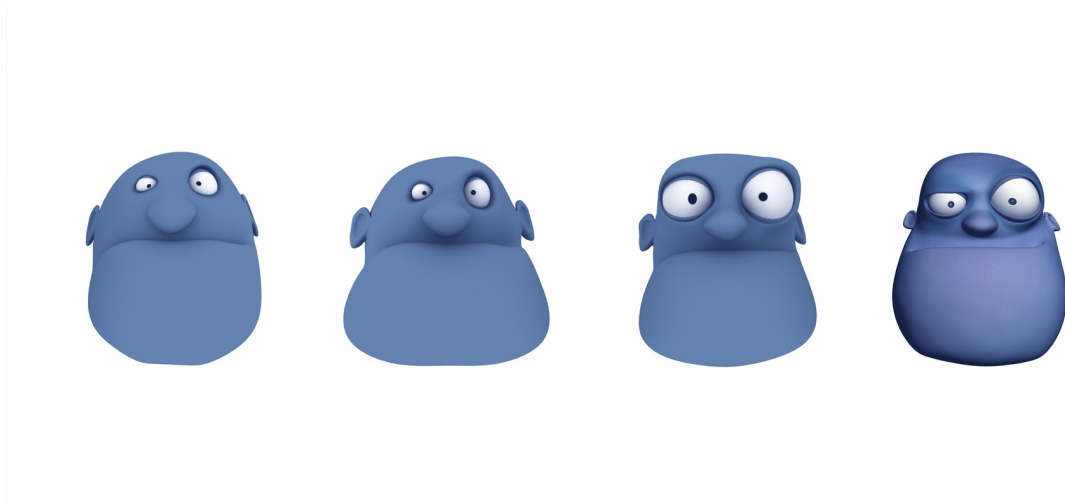


Fig. 31. *Variations of the head model*

The main step in the modeling process is the creation of the Yamah character.

The character is modeled based on the design prepared, using Polygonal modeling method and then it is converted to Subdivisional surface in order to attain a much smoother finish.

The main consideration in the modeling process is retaining the Burtonesque style of the character design. The body is modeled in such a way as to retain its smooth form by avoiding unnecessary details. (Figure 31) shows the evolution of the head model for Yamah. The head models, with small eyes do not make the character look similar to the characters in *Corpse Bride* or *The Nightmare before Christmas*. So, the size of the eyes are exaggerated. The final character has bigger eyes and smaller pupils. The lower jaw is also made bigger which makes the character look more masculine and stronger. The overall smooth shape of the head while keeping the necessary details makes the character look appealing and at the same time Burtonesque. Details such as the grooves on the hair and moustache are sculpted in, during the final stages of modeling.

Much attention is given to the overall body shape of the character. The torso is modeled as a separate object from the head. Figure 32 shows various body shapes and the last one in the set, which has an inverted egg shape is selected as the final body shape. The main purpose of avoiding some of the details on the body is to keep the shape of the body simple, continuous, and smooth.

The next stage in the modeling process is the creation of the environmental elements such as the ground and the tree. Figure 33 shows different versions of the tree modeled based on the trees from various Burton movies. However, the final tree is modeled to have a smooth spiral form, as it helps with the scene composition. The spiral tree in front of the large moon also helps to make a very Burtonesque composition.

Modeling the props such as the clothes, belt and its knot, shoes, club, bangles,

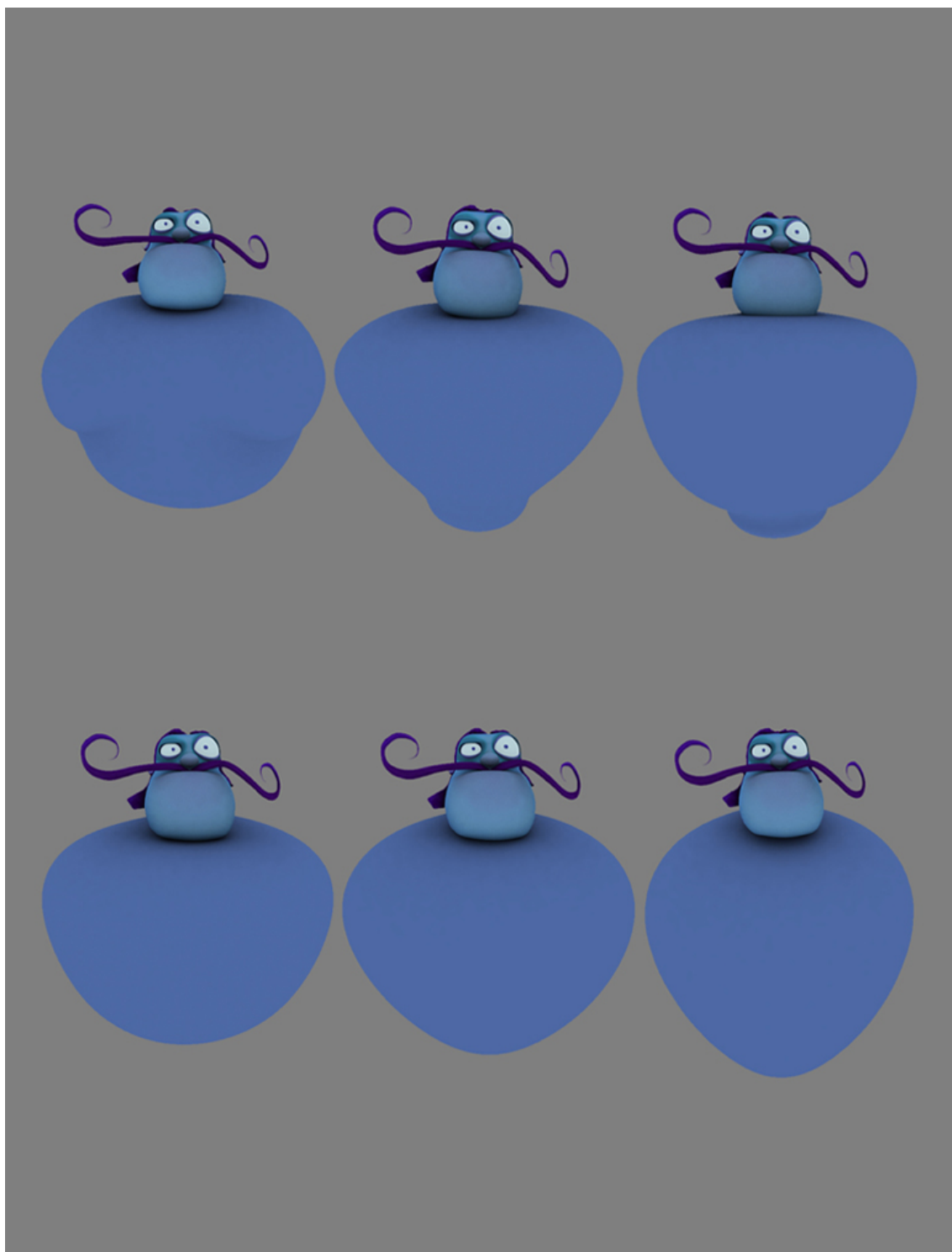


Fig. 32. *Variations of the torso model*



Fig. 33. Variations of the tree model, inspired by Burton movies



Fig. 34. *3D models of the props*

anklets and the crown is the next major step in the modeling process. The main parts of the club and the crown are modeled from a sphere and then the swirl patterns are also modeled into them. For the crown, the same spherical form is used multiple times to form the final finished crown. The shoes and the ornaments such as the bangles and anklets also have a smoothly curved or spiral form (see Figure 34).

B. Texturing

The main character in the scene, Yamah, has simple textures applied to it. The face has a painted texture map with a plain blue color as the base color for the map (see Figure 35). The figure shows the UV layout, the painted texture map and the final render of the texture map applied to the 3D model. The mouth region and the nose have a slight purple color and the eyes have a darker shade of blue around them.

The body of the character also has a blue color similar to that of the head. The shawl around the neck has a red translucent shader applied to it. Dhothi, the garment

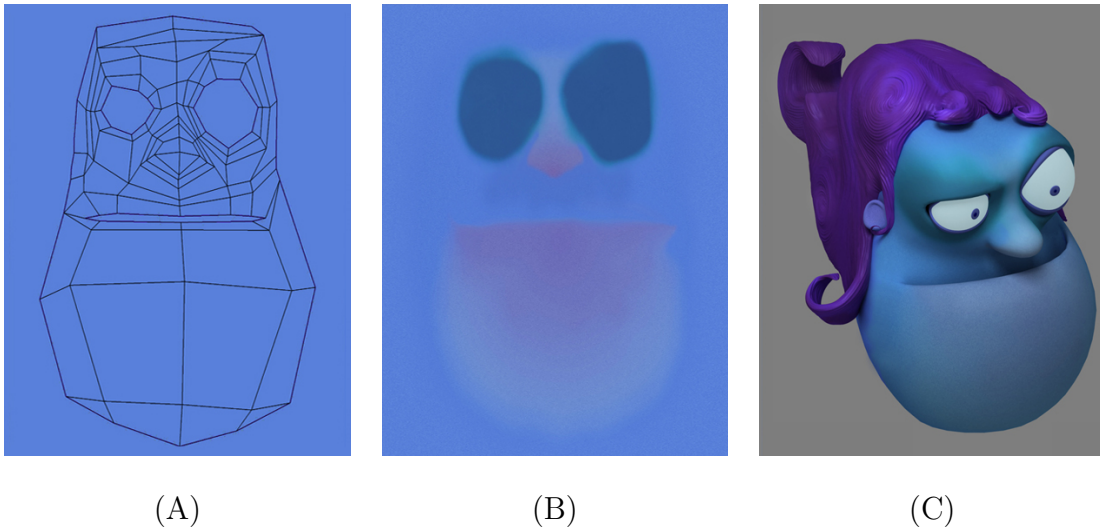


Fig. 35. (A) *UV layout* (B) *Texture map* (C) *Textured head model*

which is worn by the character also has a texture map applied to it, on which some of the folds of the cloth are painted. The belt around the waist has a yellow colored material and the shoes are green. The ornaments worn by the character such as the bangles and the anklets are also UV unwrapped and then painted textures are applied to it. The crown has two parts, the circular form and the spherical forms, and each part of the crown is individually UV unwrapped to paint the textures.

The spherical part of the crown has a swirl pattern, which is modeled and then the texture map is painted to match the details on the model (see Figure 36). The buffalo has a Blinn shader with a slight turquoise color. The cloth on the buffalo also has a texture map applied to it.

The design on the cloth, which is a composed of the paisley patterns and the Burton spirals, are drawn in vector format and then applied as a texture map on the cloth. Paisleys are a common textile design pattern found on Indian clothes. The figure shows the painted texture map and the final render of the texture map applied to the 3D model (see Figure 37).

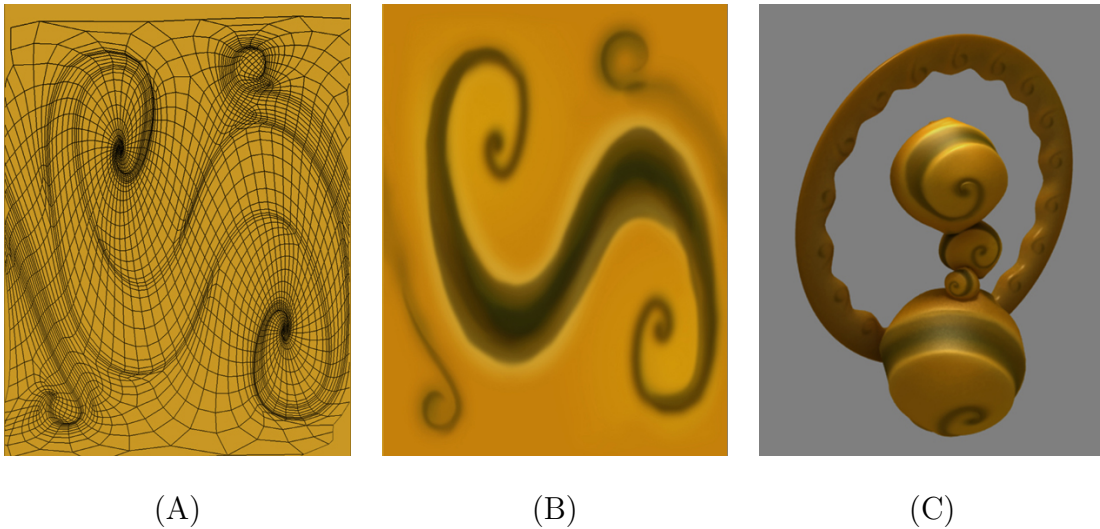


Fig. 36. (A) *UV layout* (B) *Texture map* (C) *Textured crown model*

C. Lighting

Lighting plays a key role in making the 3D scene look appealing, interesting and dramatic. In order to make the character look mysterious, a low-key lighting setup is used. It also matches the lighting style Tim Burton has used in many of the scenes in *Corpse Bride*. To ensure that the lighting efforts in 3D appear convincing, the several qualities of light are taken into consideration. Some of the important qualities of light considered are its intensity, color, softness, shadows and motivation. The following section discusses each of these qualities of light and how they affect the lighting of the target 3D scene.

Intensity: This is one of the most obvious and perceptible qualities of light. The light with the strongest intensity is the dominant light, which casts the most noticeable shadows. In a three point lighting system, the dominant light is considered the key light and in the target 3D scene, the key light has the purpose of simulating moon light. In real world lighting, the intensity of the light is controlled by adjusting

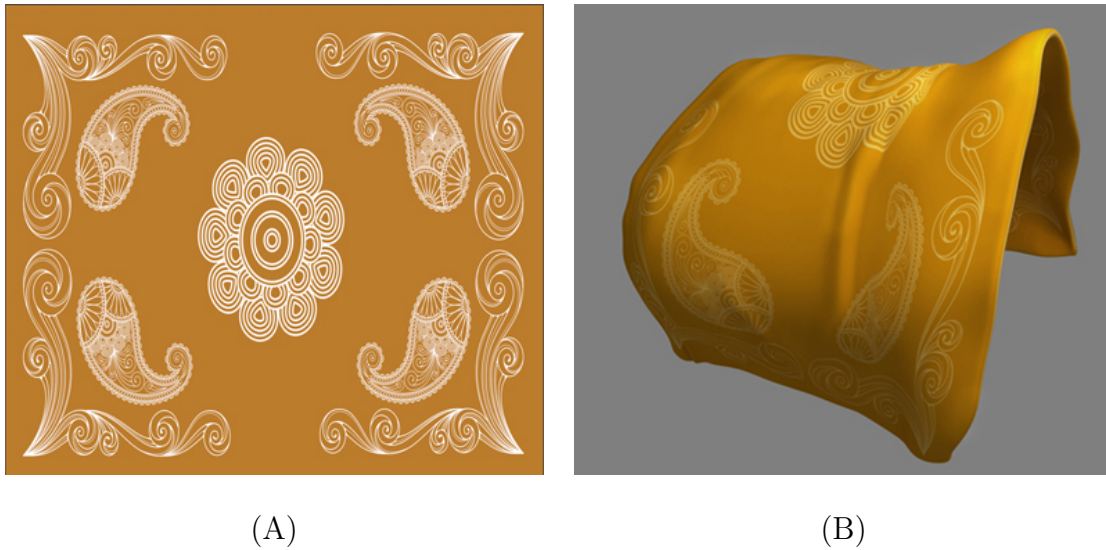


Fig. 37. (A) *Texture for the cloth* (B) *Textured cloth model*

the exposure of the camera, whereas in 3D lighting there are no exposure settings as such. Therefore, the intensity of a light source directly affects the brightness of the final output. So the brightness of the scene is altered by adjusting the intensity of the light rather than the camera's exposure. So, in the target 3D scene, the intensity of a light is controlled by its color and its multiplier, along with its attenuation. All light in the real world falls off at an inverse square rate; that is, its intensity is inversely proportional to the square of the distance from the light source. But in this case, attenuation by inverse square decay is too restrictive and so specifying a distance at which the attenuation actually starts yields a much realistic result. Moreover the light intensity is set to zero value at a far distance from the light, to avoid unnecessary calculations. Therefore, a starting point from where the light attenuation starts and a far distance where the light intensity reaches full attenuation is specified for most of the lights used in the target 3D scene.

Color: As a visual cue to the type of light source or the time of the day, season



Fig. 38. *Lighting for Land of the Living*

and weather being represented, color of the light is incredibly important in any 3D environment. The similarities and differences of lighting colors within a scene will help determine its mood, with the neutral colors giving a more somber tone. Whilst cameras and film color are balanced for different environments and their light types, the color of light sources in 3D needs to be altered depending on the type of light being represented and the mood portrayed. Blue light can help to paint a moody and unhappy scene or a calm serene one, whilst red is often used to signify danger or passion. The key light in the target 3D scene represents the moon light and it is tinted blue in order to accentuate the moody feeling of the death environment. The choice of the blue tint for the key light is also inspired by the lighting style used in the Land of the Living from the film, *Corpse Bride* (see Figure 38).

Softness: Soft light is widespread in the real world lighting and also in the world of cinematography. In CG, the default light settings often yield hard edged shadows. This is solved to a great extent by the use of Ambient Occlusion, which yields softer shadows which in turn adds to the realism of the scene (see Figure 39).

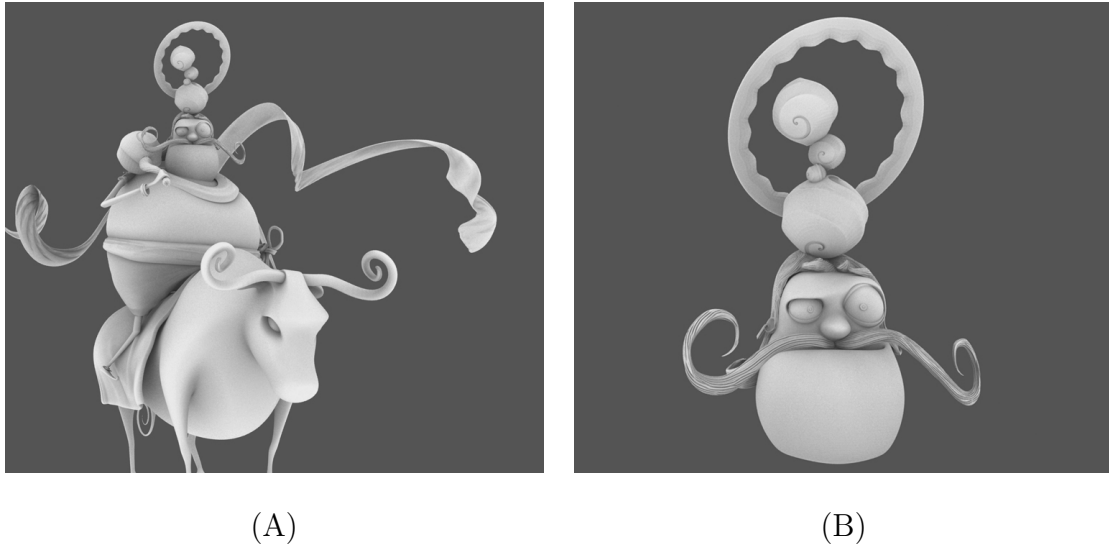


Fig. 39. *Ambient occlusion (A) Yamah (B) Close up*

Shadows: Shadows play a massive role in describing a light. They add to a scene's realism, consistency, and composition. In the target 3D scene the dominant key light is placed behind the main character, Yamah to create a dramatic low-key lighting. There are other fill lights to illuminate the face of the character though it is very dim compared to the bright key light used. This helps to give a more mysterious quality to the personality of the character and makes the character appear more powerful and enigmatic. The contrast in lighting caused by juxtaposing the dark shadows along with the bright highlights also add a more dramatic effect.

Motivation: Lights in a scene can be categorized in terms of their motivation. The dominant light, used in the 3D scene which represent an actual light source, is called a logical light. The final concept art shows that moon is the logical light for the 3D scene. The placement of lights can also be for aesthetic reasons. A pictorial light is one which is placed in a 3D scene just because of the pleasing effect it produces. In addition to the logical light, a number of pictorial lights are placed in the target 3D

scene, to make the scene look more realistic and inspiring. Largely, it is the pictorial lights placed in the scene that helps to introduce drama.

Implementation: Each of the lights placed in the scene is for a specific reason. The lighting scheme is built up steadily and purposefully, with each of the light sources playing a harmonious part in the cumulative solution, rather than battling against each other. The 'standard lights' available in 'Autodesk 3DS Max', are very versatile and can be made to simulate any type of light. Moreover, they are comparatively quick to render. Therefore, only the 'standard lights' in '3DS Max' are used for the lighting of the 3D scene. The 'standard lights' can also be easily controlled and adapted to produce any style of lighting and their controls allow tight streamlining of their performance, especially at render time. In a natural daytime setting, light would normally bounce around from surface to surface, illuminating the majority of the shot. However, with a nighttime setting the 3D scene has very little indirect illumination. There are just enough fill lights to hint at the general shape of the outlying structures in the shots, but not necessarily all of the details on them. When pointing towards the camera, this light sometimes doubles as a backlight for the objects in the scene, creating a rim of light around their edges. Tinted fill lights are used to illuminate the dark foreground from the point of view of the camera.

D. Matte Painting

Matte painting involves the creation of a painting for extending the virtual space of the scene. In order to create the matte painting already existing images are used and they are painted over to combine them together to get the final image. Elements such as full moon night, snow, wonky or skewed shapes and tapered forms are all characteristics of a Burtonesque environment. Figure 40 shows how the process of



Fig. 40. *Creating a Burtonesque matte painting*

creating a Burtonesque environment matte painting by starting from a photograph, which does not look Burtonesque. The idea here is to make a full moon winter night from an image, which shows a summer day. The original photograph of the summer day is not looking Burtonesque, as it lacks all the elements or patterns of a Burtonesque environment.

The matte painting for the target should match the concept art for the environment. The concept art shows a spiral tree in front of a large moon and a blue sky with tiny stars. The tree and the moon are done as 3D models and so they are avoided in the matte painting. The final matte painting has a plain blue sky with tiny white stars scattered unevenly in the sky.

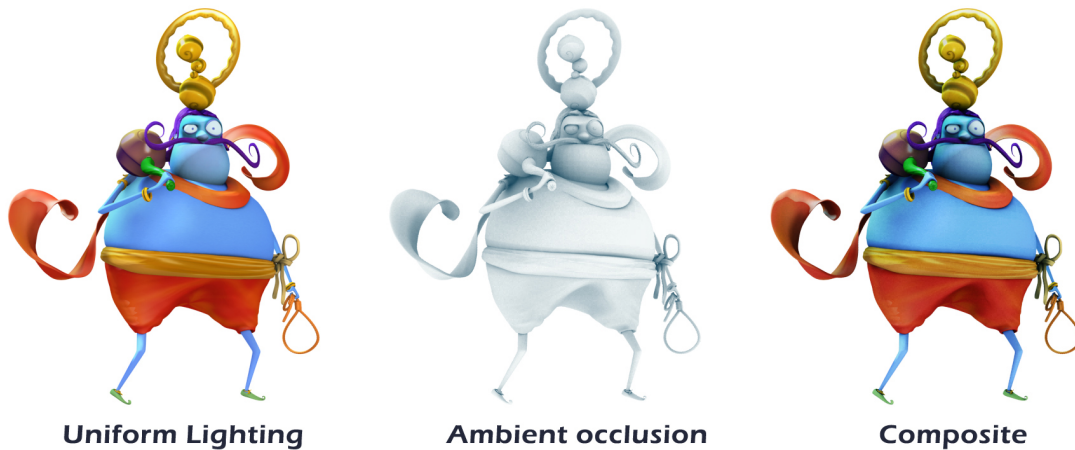


Fig. 41. *Compositing different passes*

E. Final Rendering

The final rendering consists of compositing the matte painting of the environment with Yamah and the buffalo. Different lighting passes for Yamah, such as the beauty pass and the occlusion pass are rendered out and then composited to get the final

image (see Figure 41). Yamah along with the buffalo is rendered out in such a way as to match its lighting with the lighting of the environment. Then the occlusion map is rendered out for the same and then it is composited over the original render of Yamah. The image is then color corrected and enhanced in Adobe Photoshop to get the final rendering (see Figure 42). The background matte painting is less saturated than the character and its mount. This is done to enhance the Burtonesque feel of the rendering as contrast between the muted and colorful is a technique employed by Burton in many of his works.

Once the final image is done, more renderings are done to create posters for Yamah which are inspired by some of the posters for Tim Burton's *Alice in Wonderland* (see Figure 43). The title 'Yamah' which is designed as an ambigram, is added to the poster.



Fig. 42. *Final rendering of Yamah*



Fig. 43. *Rendering of Yamah - Image I*

CHAPTER V

CONCLUSION AND FUTURE WORK

A. Conclusion

This thesis is focused on the transfer of the overall visual style of the film director, Tim Burton to a Hindu mythological character, Yamah. Figure 44 shows a result of the style transfer process. The style transfer process included identifying the unique shapes and forms which define the work done by Tim Burton and then judiciously applying them in the creation of a 3D scene to make it appear Burtonesque. Though there are several different patterns and shapes such as stripes, swirls and spirals which are usually employed by Tim Burton in his designs, incorporating all the different Burtonesque elements into one single scene may not be appropriate as it may not result in an interesting composition. The Burtonesque design elements suitable for a scene are selected mainly based on the requirements of scene composition. The colors or lighting of the scene is decided by the requirements of the story. However, the colors and lighting are used in such a way as to emphasize the Burtonesque feel (see Figure 44).

The thesis explains how creating contrast using colors such as purple and green or juxtaposing colorful scenes with muted colored scenes can be helpful in creating the Burtonesque feel. The final image created as part of the thesis used the spiral form and the swirl pattern much more than any other Burton design element, as it complements the overall composition. The implementation of this project yielded results, which are consistent with the goals of the research, while providing strong insights about the use and application of the various Burton design elements (see Figure 45).

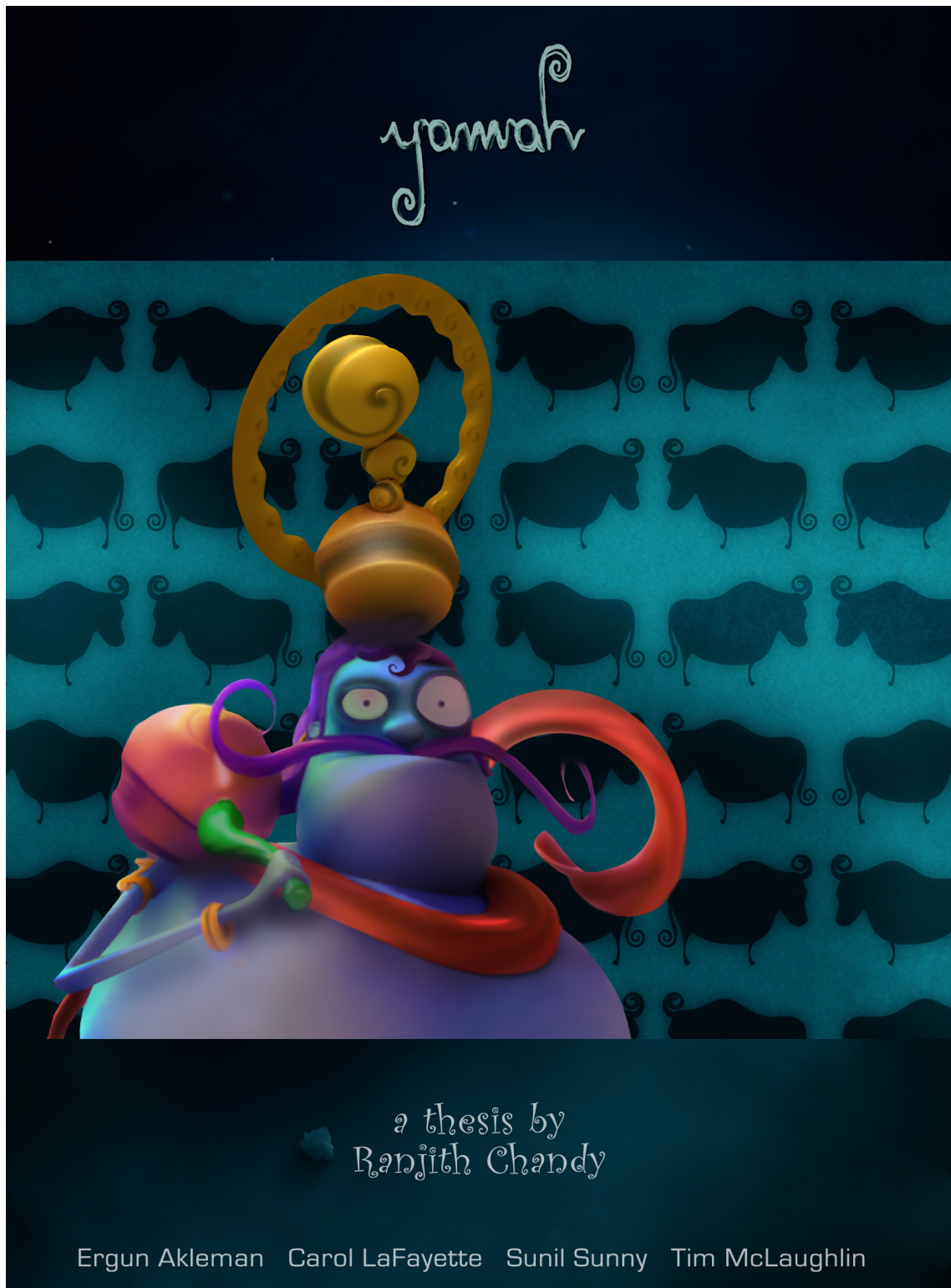


Fig. 44. *Rendering of Yamah - Image II*

The movie *Corpse Bride* by Tim Burton was the greatest source of inspiration for the case study done, because of the visual style of the movie. Since the focus is on the visual style of Tim Burton, an analysis of some of the movies done by Burton, particularly *Edward Scissorhands*, *Charlie and the Chocolate Factory* and the stop-motion movie, *Corpse Bride* was done as the first step.



Fig. 45. *Style transfer (A) Emily, the corpse bride (B) Self caricature*

Identifying the major design elements used by Burton in most of his movies, his lighting style and coloring scheme, was the next step in the process. Designing Yamah and an environment suitable for him using the Burton design elements and also incorporating his lighting and coloring styles became the next stage. The various features of the environment was judiciously decided based on the concepts presented in the book 'A Pattern Language' [3]. The implementation part consisted of creating the character and the environment in 3D and then applying a coloring and lighting style consistent with the Burton style.

To conclude, this thesis presents a process by which a character from a particular

culture is studied and then visualized in the style of a film director from another culture, while carefully retaining the main features of the original character so that the character is perceived in a style different from the way it is usually represented.

B. Implications for Future Research

The research that was accomplished in this study can further be explored in different ways. This study was focused on the visual design aspects of the scene and not on the stop-motion aspect or how to create the effect of stop-motion in 3D. A study on how to animate the characters of a 3D animation to create the effect of stop-motion can be an area of further exploration.

Applying the research and creative methods used to visualize Yamah can be extended to visualize characters from other mythologies, for example Thor from Norse mythology. Visualizing the character in the style of Walt Disney or Looney Tunes or in the style of another director who has a definitive style can be an area of exploration.

Visualizing a mythological character or a death character from another culture can be explored and a similar project to visualize the death character and its environment as symbolized by other cultures not addressed in this thesis can be done as an extension.

Various symbols, signs, and colors have meanings, which are almost universal. For example, the red color means to stop and the green color means to proceed in the traffic signaling system in almost all countries. There are many visual elements which have similar meanings in many cultures. With the ever-increasing importance of visual communication, a study on developing a methodology for representing an idea like death through symbols and visuals alone, without depending on the verbal language to facilitate cross-cultural communication could be an area of research.

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APPENDIX A

AMERICAN FILM DIRECTOR, TIM WILLIAM BURTON



Fig. 46. *Tim Burton* [12]

Timothy William Burton was born in Burbank, California, on August 25, 1958 as the first son of Jean and Bill Burton. From the highly influential ages of twelve to sixteen Burton was placed into his grandmother's care. The effects of being separated from his parents had a dramatic impact on Burton's personality and his outlook on life. During his film career, Burton continuously touches upon the role of parental figures or lack of them. When speaking about his youth Burton describes himself as being "very introverted." [28] Growing up in Burbank did not help his increasing feelings of alienation, although it is deemed as the movie capital of the world it is 'primarily an archetypal working class American suburb.' [28]

Burton found it difficult to relate to the conformist community in which he lived and turned to films as a means to escape. Pulp, horror, and science fiction films inspired his imagination. The contrast of color and darkness, art and pulp in films

such as *The Pit and the Pendulum* (1961) and *The Masque of the Red Death* (1963) fueled Burton's imaginations. These movies had a morbid obsession to death and decay while having a spectacle of colorful scenes. The idea of feeling like an isolated stranger also became one of the many issues that Burton would tackle in his films. His passion for the weird and wonderful both thematically and stylistically, stem from the influential monster movies he loved such as *The Brain That Wouldn't Die* (1962), *Frankenstein* (1931) and *The Creature From The Black Lagoon* (1954.) [28]

Burton recalls in Salisbury's book, 'Burton on Burton' how much he adored and identified with the monsters he saw on screen. "Every kid responds to some image, some fairy-tale image, and I felt most monsters were misperceived, they usually had much more heartfelt souls than human characters around them. My fairy-tales were probably those monster movies; to me they are fairly similar". [28] The idea of being a misunderstood monster is evident in a large portion of Burton's works as is the fairy or folk tale element. The main character Edward in *Edward Scissorhands* can be cited as an example for a character who is misperceived. Fairy tales and monster movies were a large part of Burton's life as a youngster and he idolized the works of his favorite actor Vincent Price. [24]

Whilst still in school, Burton experimented with filming, creating science fiction and monster films. The start of his love for filmmaking began with Burton and his friends making Super 8 movies in their spare time. He also experimented with stop-motion animation, influenced by the works of the stop-motion animator Ray Harryhausen. At the age of 18, he joined CalArts where he developed his skills in animation. Burton was recognized as a talent and was taken out of CalArts prematurely to work for Disney. His first assignment was on the animated feature *The Fox and the Hound* (1981). His time at Disney did not begin very well as Burton had problems trying to adhere to the Disney ethos. Burton was ejected from his comfort

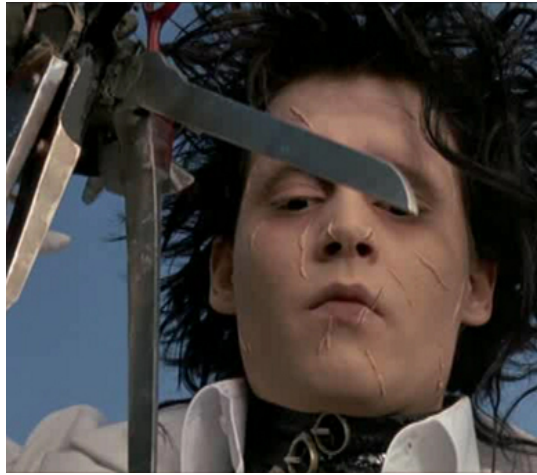


Fig. 47. *Edward Scissorhands* [1]

zone as his first job *The Fox and the Hound* (1981) required him to draw cute doe eyed Disney foxes. He recognized that he was not suited to this style of art; describing his drawings of foxes in Salisbury's 'Burton on Burton' as "road kills." [28]

Later he was given a job as a conceptual artist, designing characters and ideas for use in future Disney projects. Burton's first piece as a conceptual artist was a project called *The Black Cauldron*. When speaking about the project he reveals that: "It was great because for several months I got to sit in a room and draw any creature I wanted to". [28]

It was around this time that he first drew 'Jack Skellington', which became the main character of his stop-motion feature, *The Nightmare before Christmas*. However as Burton was allowed to freely express himself many of the monsters he created were considered far too extreme. Although his creations for *The Black Cauldron* were never used, Burton clearly enjoyed his few months of freedom. Even though Disney did not use his sketches, they did not dismiss Burton's ability as an artist and decided that they could utilize his distinctive style. The style of his works allowed him to



Fig. 48. *Jack Skellington* [7]

stand out from the crowd and he was "given 60,000 dollars by Disney to make a short animated film based on his own writings and drawings." [24] The piece that Burton created was made in 1982 and was titled *Vincent*.

Burton's quirky, gothic comic style, infatuation with the morbid, and love of old horror films did not fit well with the Disney sensibility. After making another short *Frankenweenie*, for Disney in 1984 Burton decided to leave Disney. Only a year later, Burton was offered the opportunity to direct a mainstream Hollywood film for Warner Bros, *Pee-Wee's Big Adventure* (1995). This film was the first step on the studio ladder for Burton, which saw his career soar resulting in films such as *Batman*, *Edward Scissorhands*, *The Nightmare before Christmas* and *Corpse Bride*. [24]

The Style of Tim Burton: Stylistically, Tim Burton is undeniably one of Hollywood's most distinctive mainstream directors. Every Tim Burton film is designed with the visual motifs providing so much of what should be considered Burtonesque. Expressionism is fundamental to the Burton ethos and many of the classics of early German cinema seem to have had an effect on his work. In particular *The Cabinet*

of *Dr Caligari* (1919) with its twisted sets, forced perspective backdrops and use of psychological realism over material realism is reflected in a number of Burton's scenes. The Bike surgery sequence from *Pee-Wee's Big Adventure*, the Netherworld from *Beetlejuice*, the tortured appearance of Edward Scissorhands (see Figure 49), and Gotham city's awe inspiring architecture are examples. The spiral hill in *The Nightmare before Christmas*, is a trademark of Burton's work. The factory of Willy Wonka is home to numerous twists and swirls.



Fig. 49. *Tortured appearance of Edward [1]*

This is emphasized by the fact that most of his productions are filmed in studio sets instead of on location, which allows Burton complete control of designing the sets the way he has imagined it in his mind. This is what that gives the unique quality to his sets and in turn to his work.

The Works of Tim Burton: Tim Burton started his career at Disney after his studies from CalArts. He made three short films while he was at Disney. These three shorts he created for Disney was homage to his favorite horror actor Vincent Price. Entitled *Vincent* (1980) the first short was a six-minute film about a boy called Vincent Malloy,

who wanted to be Vincent Price. This first short film is similar in look and tone to his later movie *The Nightmare before Christmas*. *Vincent* is also typically dark and gothic. The second film entitled *Hansel and Gretel* (1982) was an animated martial arts short, made for 'The Disney Channel'.



Fig. 50. *Pee-Wee* [4]

The last film Burton made whilst working at Disney was called *Frankenweenie* (1984). A graveyard in the title sequence of *Frankenweenie* is one of those incredibly gothic images common to Burton's work. The short focuses on a young man from the suburbs inspired by thirties horror. After his dog is killed in a car accident, the hero reanimates his pet to the horror of his parents and neighbors. Disney did not have much use for the films and neither *Vincent* nor *Frankenweenie* was distributed. Burton was understandably miffed by the studio's decision and eventually made his feature debut, *Pee-Wee's Big Adventure*, in 1985 for Warner Brothers.

Burton is the producer for two stop-motion animation movies, *The Nightmare before Christmas* (1993) and *Corpse Bride*. In both films, Burton had a role in the look and design of the characters and the environment. He is a co-director for *Corpse*

Bride. All the movies directed by Burton had a unique quality and style, which made them Burtonesque. Burton's love for dark and gloomy gothic sets is apparent in *Batman*. He expresses his love for the weird and wonderful by paying particular attention to the Joker and to Batman's array of gadgets. Burton touches upon the idea of the absent parent and the effects this has on an individual, in this film. In *Edward Scissorhands*, the character of Edward, with an added twist of Burton's distinctive fairy tale formula, plays out Burton's feelings of exclusion and rejection as a child. Burton's influences such as the horror film and the fairy tale add to the grand elements of the film. Whether Burton is working alongside a major Hollywood studio or with a smaller independent team, he always manages to express his creativity. He has managed to connect artistic and global audiences with his consistent use of gothic designs and fantastical themes often incorporating personal emotional messages into his works. [28].

Selected Movies: Three movies directed by Tim Burton, namely *Edward Scissorhands*, *Charlie and the Chocolate Factory* and the stop-motion movie, *Corpse Bride* are reviewed in this section as they are good examples, representing his style.

Edward Scissorhands (1990): This 1990 release is very Tim Burton in style as this is one of the first movies in which he gained complete control over the film, mainly because of the huge commercial success of his previous film *Batman*. Moreover, Tim Burton was involved in the story development for the film. The movie also marked the beginning of Burton being considered as a mainstream artist. *Edward Scissorhands* is a bittersweet fairy tale about a boy with huge scissors for hands. The movie has a very gothic style. Edward's home is dark and gloomy, and this is placed in juxtaposition with a stylized view of suburbia.



Fig. 51. *Hand topiary in Edward Scissorhands [1]*

Suburban normality is contrasted against the gothic and expressionist home in which Edward dwells, one filled with a sinister atmosphere and with the angst of the lead character. Edward has tried to express himself by indulging in topiary and by placing a beautiful garden outside the gloomy mansion. Burton is contrasting the innocence of Edward with the unusual appearance Edward has. The vibrant green color of Edward's topiary creations is something that echoes the vibrant creativity of the character. Burton has carefully placed elements such as the bush shaped as a hand, placed near the entrance to Edward's mansion, which is a symbolic expression of Edward's longing to have hands that would make him complete (Figure 51). Another aspect of his style is the use of a mixture of saturated and de-saturated colors as well as his use of odd shaped de-saturated things. It seems he uses odd shapes to show uneasiness, in other words instead of showing a normal looking dark castle with a Dutch angle to show possible danger, Burton will show you an odd shaped twisted dark castle at a normal angle. One thing Burton seems to express not just in this movie but in others as well is that appearances can be deceiving. The town of

Suburbia in this film is the perfect American town, well at least on the outside. But as the film progresses, it can be seen that most people of the suburbia are only out for their own interests. This dark nature of the suburbia is represented in the shot where the character, Peg gets into her car and the side view mirror is reflecting the pastel painting like town and then as she adjusts her mirror the view in the mirror changes to the dark gloomy castle. Tim Burton is revealing the true nature of the suburbia through this shot, though externally it is a very colorful place. On the other hand, Edward who looks scarred and scary, is almost child like. He does not know harm, gossip, or lies. Burton also reveals this child like nature of Edward, by shooting him from a slightly above normal angle not to diminish him completely but to make him appear more innocent. In fact, this film could not have been as good as it is without the directing styles and creativity of Tim Burton.



(A)



(B)

Fig. 52. *Fairytale kind dwelling from Charlie and the Chocolate Factory (A) During day [26], (B) During night [26].*

Charlie and the Chocolate Factory (2005): This movie is a remake of a classic film actually based on a story written by Roald Dahl in 1964. The Chocolate Factory of Willy Wonka is a Burtonesque trademark. It is the symbolic fairytale castle upon a hill and looms over the town about it, just like the dark mansion in *Edward Scissorhands*. The stark appearance of the factory is set in direct contrast with Charlie's home, a run down cottage in which Charlie lives with his parents and his grand parents. The cottage, which is dilapidated and wonky, is both expressionist and reminiscent of a dwelling from a fairy tale (see Figure 52). The welcoming show that happens when the winners of the golden tickets reach the factory entrance, though bright and colorful ends in flames. This mixture of both bright and dark elements is seen in every room visited in the factory. This movie contains dark de-saturated imagery, some of it even slightly gothic. It also contains the bright-saturated colors as well. Like *Edward Scissorhands*, the things appearing dark or gloomy are not necessarily bad and the things that are bright and cheery are not that either. For example, Charlie's house is very dark, depressing in looks but that family stays together and loves each other. Willy Wonka's factory though it is dark on the outside, inside it is bright and colorful. The difference between the two creates a strong contrast when it comes to the factory's interior, something which is clearly intentional and which aids the narrative in making Wonka's realm a fantastical place removed from the everyday reality. All of the other children besides Charlie are wearing bright or colorful clothes, but on the inside, they lack love and do not care for each other. Charlie on the other hand is loving and caring. Burton seems to go to great lengths to show that things are not always, what they look like on the outside. This is shown even in the last scene with the Bucket's house. It is gloomy snowing and de-saturated outside. Inside there is colorful food on the table and happiness. Once again, the camera cutting or special angles are not used in any particular style but the composition of the shots is

very artful.



(A)



(B)

Fig. 53. *Chocolate palace for Prince Pondicherry* (A) *Making the palace* [26], (B) *Finished palace* [26].

The movie has a flashback to show Wonka's worldwide reputation as a chocolate maker, in which an Indian Prince is asking Wonka for a palace to be built out of the confectionary. Wonka builds a palace and everything inside it for Prince Pondicherry, using chocolate (see Figure 53). This particular scene, showing an Indian prince was an added inspiration for visualizing an Indian theme in Burton style.

Corpse Bride (2005): Released in 2005 by Warner Bros, *Corpse Bride* is the second feature length stop-motion movie that Tim Burton had been involved with and the first film he has ever co-directed. The movie was co-directed by Mike Johnson, who had been an assistant animator on the first stop-motion feature produced by Burton, *The Nightmare before Christmas*. While *The Nightmare before Christmas* was quintessentially an American tale, *Corpse Bride* is more rooted in a European sensibility, with affinities to the Gothic tradition and the mores of Victorian-era England.

[28]

Corpse Bride is classic Burton in that it proposes dual worlds of the living and the dead and the muted colors of the Land of the Living, which we see in the title sequence of the film, is juxtaposed with a decidedly more vibrant and colorful Land of the Dead. The implication is that the inhabitants of the Land of the Dead are more alive in a sense, free of the social boundaries of the Land of the Living. The Land of the Living is loosely based on the Victorian era, it's houses tightly crammed along the streets and the characters are dead in a sense, following their social codes without question. An element of exaggeration is evident throughout the film, which can be described as another of Burton's evocations of German expressionism. It is apparent in most of Burton's films and underscores the expressionist elements, which are again evident in this work, including the angst of all three main characters- Victor, Victoria and Emily, the Corpse Bride.



Fig. 54. *Victor and Emily from Corpse Bride* [34]

The characters for *Corpse Bride* (see Figure 54) were designed and developed by Burton and Carlos Grangel. Burton made his own character sketches and passed

them on to Spanish character designer Carlos Grangel, whose work had first been widely noted on Dreamworks movies such as *The Prince of Egypt* (1995) and was especially acclaimed on *Shark Tale* (2004).

To put all of this together is to look at how Tim Burton has evolved over the years, from *Edward Scissorhands* in 1990 to *Charlie and the Chocolate Factory* in 2005, which includes the stop-motion features he made. That is only fifteen years of making movies and only a portion of his career, but still it can be noticed from watching these films that Tim Burton does have a particular style and because he writes and produces a lot of his films, his touch goes into every aspect of the film.

APPENDIX B

A CHARACTER FROM HINDU MYTHOLOGY: YAMAH

Among the ancient literary works which deal with mythologies, the Vedics have a prominent place. Most of the Vedic gods find a place in later Hindu pantheon. Among the vedic gods, Yamah has a unique place. The image of Yamah, as derived from the Vedic references is vague and inconsistent. Though Yamah was considered as an immortal, he was the first to die and he found the path to a new settlement for all the dead. He became the king of this realm for the dead. Later in the Puranas, Yamah underwent an evolution, where the king of the land for the dead, became the god of death or death personified [20].

According to Van Den Bosch, Yamah is one of the commemorative figures in the history of Indian religions, who can boast of a history that goes back to at least the Indo-Iranian period. Amarakosa by Amarasimha, the famous lexicographer who lived in the second half of the first millennium A. D. provides, fourteen names used in his time to describe Yamah, which run as follows:

”King of the Law, Lord of the Deceased Ancestors, Impartial Judge, King of the Dead, Ender, Brother of Yamuna, Destroyer, King of the Yamas, Kala, Destructive Time, Bearer of the Rod, God of the Rites for the Deceased Ancestors, Son of Vivaswat, the End” [33]

These lists of names give us a good impression of the various characteristics of Yamah and his complex nature. In this same period also the first manuals were written with instructions for the artisans, how to represent these deities, so that they could be identified. The various attributes, which are characteristics for these gods as well as their mounts, are carefully described, so that no mistake could be made in



Fig. 55. *A modern day illustration of Yamah [36]*

the identification. Some of these attributes clearly refer to the characteristics of these gods or represent the instruments with which they exercise their functions. Sometimes however it is difficult to define the exact relationship between these attributes and the gods who are endowed with them. This is especially the case with the various animals serving as mounts for the gods. In the iconographical descriptions and representations of Yamah, from the second half of the first millennium AD onwards, he is connected to his mount, the buffalo. The names of Yamah, such as the King of the Law and Bearer of the Rod occur for the first time in the ancient Indian epics like Ramayana and Mahabharata. An expression like the Brother of Yamuna is mentioned for the first time in the Indian Puranic literature. Many other such names occur in the Vedic texts. All these names together constitute the image of Yamah. In the Vedic tradition, Yamah is the first human who died and found the path to the realm of the dead [33].

Association with Death: Deities associated with death take many different forms, depending on the specific culture and religion being referenced. Many cultures have

incorporated a god of death into their mythology or religion. Since birth and death are two important aspects of human life, the deities associated with these are usually the most important deities of a religion. Yamah is considered as a death deity in many cultures and is known by different names in different cultures.

According to Van Den Bosch, though Yamah is mentioned in Atharvaveda, one of the Vedic texts as the kind guide who helps the dead to find their way to the hereafter, he became connected with death and judgement by the Vedic theologians as mentioned in the later Vedic collections of texts, Samhitas. So the ruler over the dead came to be known as the Lord of Death to whom the dead had to render an account of their deeds.

Yamah has a number of attendants to assist him in his many tasks. In his palace he keeps a register called the "Book of Destiny" in which each person's span of life is recorded. Sometimes, Yamah himself ascends riding on his buffalo, his steed of choice, and carrying in one hand a heavy mace and in another a noose to drag the hapless person down to his palace. There the dead man or woman's soul is made ready to pass in judgment before Yamah, who sits on his throne in a great hall in his palace.

Yamah as the impartial judge who binds the human beings by his sentence is also called the King of the Law Dharmaraja, because he maintains the law by his judgement. So in the epic period, Yamah takes over an important function from Varuna, another Hindu Vedic god who in the ancient Vedic texts is closely connected with the cosmical and moral order of the universe. The noose with which Varuna once bound the sinners, becomes in the Epic texts an attribute which is characteristic of Yamah. According to Visnudharmottara Purana, the noose in the hands of Yamah also refers to the horrible road which the departed has to follow [33].

The Buffalo as an Emblem of Yamah: The Indian water buffalo is kept as a domesticated animal throughout India (see Figure 56). The wild buffalo, though scientifically different is very similar to the tamed one in appearance. Both are black in color. Both have transversely ridged horns. The horns are triangular in cross-section and are pointed backwards and inwards. The tail reaches as far as the hocks. Swamps are the ideal habitat for the wild variety, as it provides pools of water to lie in and mud wallows in which to soil and cake themselves with earth. The tamed buffalo is used in rice cultivation as draught animals, because of their enormous strength and because it is a suitable animal for ploughing heavy wet soil of the paddy fields. Though the tamed buffaloes are helpful in farming, the wild ones are often feared as they would ruin the crops by breaking into the fields and they are difficult to be driven away. They are also considered as the boldest and most savage among the Indian Bovid. Because of its habit of wallowing in mud, buffalo is associated with earth and associated with under earth in the Hindu tradition. Since it is hard to drive away a wild buffalo from the fields, it got associated with death, which is an inevitable aspect of life. According to Van Den Bosch, the slate black color of the buffalo, its enormous strength and its savage nature could be other plausible reasons for associating the animal with death.[33]

Buffalo had an important place among the aboriginal agrarian population of early India. Later it acquired a significant place in the Sanskrit tradition of the brahmins, as a result of the acculturation between the agrarian population and their Aryan conquerors who were originally pastoralists. In the interaction process between both parties, the brahmins connected their own traditions with that of the agrarian population and incorporated these in the Sanskrit tradition. In this process of acculturation, the buffalo acquired a place in the brahminical tradition as a symbol of death and destruction, with its place of origin within the tradition of the agrarian,



Fig. 56. *Asian water buffalo* [22]

especially rice cultivating population.

The buffalo is not mentioned as an emblem of Yamah in the earlier Vedic and Epic periods. The buffalo was shown as an emblem for Yamah, for the first time by the encyclopedic Varahamihira who lived in the sixth century A.D. The use of buffalo as an emblem of Yamah, must have originated in popular folk traditions outside brahminical circles. Then the moralistic inferno artists employed the buffalo in their visual teachings on morals, in connection with Yamah, the Lord of the Law and the Judge of the Dead. Later this animal became incorporated in the iconographical treatises of the brahminical orthodoxy. In one of the Puranas, Vishnudharmottara, there is a chapter, which deals with the iconography of Yamah, where it is mentioned that Yamah should be seated on a buffalo and the buffalo represents the loss of desire (moha), which occurs at the time of death of men. [33]

By making the buffalo the mount for Yamah, the brahmins elucidated the destructive character of the god and his close associations with the realms below the earth where his might is prevailed. Moreover, they cleverly made use of the feelings

of fear and awe, which the people had for this animal. These feelings of fear and awe created the required condition to make them receptive for the message of Yamah, the king of the Law and the Judge of the Dead.

APPENDIX C

FILMOGRAPHY

Director

Alice in Wonderland	2010
Sweeney Todd: The Demon Barber of Fleet Street	2007
Tim Burton's Corpse Bride	2005
Charlie and the Chocolate Factory	2005
Big Fish	2003
Planet of the Apes	2001
Sleepy Hollow	1999
Mars Attacks!	1996
Ed Wood	1994
Batman Returns	1992
Edward Scissorhands	1990
Batman	1989
Beetlejuice	1988
Pee-Wee's Big Adventure	1985
Frankenweenie	1984
Hansel and Gretel	1982
Vincent	1980

Producer

9	2009
Tim Burton's Corpse Bride	2005
Mars Attacks!	1996
James and the Giant Peach	1996
Batman Forever	1995
Cabin Boy	1994
Ed Wood	1994
The Nightmare Before Christmas	1993
Batman Returns	1992

Production Designer

The Nightmare Before Christmas	1993
Vincent	1982

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